

Well Planning Proposal FOR

Axia Energy
Bulldog #5-31H-790
Moffat Co., CO

Well File: Design #1 (2/22/12)

Presented By:

Pat Rasmussen
Regional Manager

Bret Wolford
Well Planner



Sharewell
Energy Services, LP

Axia Energy
Project: Moffat Co., CO
Site: Sec.5-T7N-R90W
Well: Bulldog #5-31H-790
Wellbore: Wellbore #1
Design: Design #1
Lat: 40° 35' 58.988 N
Long: 107° 30' 40.860 W
GL: 6492.00
KB: WELL @ 6512.00usft



SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
11187.08	0.00	0.00	11187.08	0.00	0.00	0.00	0.00	0.00	KOP / Start Build 12.00°
11978.58	94.98	190.90	11662.74	-509.56	-98.10	12.00	190.90	518.91	EOC / Start 6390.49' hold at 11978.58 MD
18369.07	94.98	190.90	11108.00	-6761.13	-1301.62	0.00	0.00	6885.28	TD at 18369.07

WELL DETAILS: Bulldog #5-31H-790

+N/-S	+E/-W	Northing	Ground Level: Easting	Latitude	Longitude	Slot
0.00	0.00	1467653.255	6492.00 2441516.424	40° 35' 58.988 N	107° 30' 40.860 W	

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape Point
Bulldog 5-31H-790 PBHL	11108.00	-6761.13	-1301.62	1460923.385	2440061.794	40° 34' 52.177 N	107° 30' 57.730 W	

CASING DETAILS

TVD	MD	Name	Size
1000.00	1000.00	13 3/8" Csg.	13-3/8
9358.00	9358.00	9 5/8" Csg.	9-5/8
11662.74	11978.58	7" Csg.	7
11108.00	18369.07	4 1/2" Csg.	4-1/2

SITE DETAILS: Sec.5-T7N-R90W

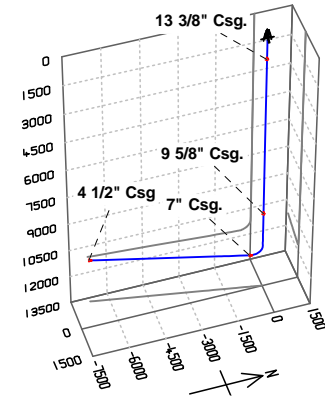
Site Centre Latitude: 40° 35' 58.988 N
Longitude: 107° 30' 40.860 W

Positional Uncertainty: 0.00
Convergence: -1.30
Local North: True

PROJECT DETAILS: Moffat Co., CO

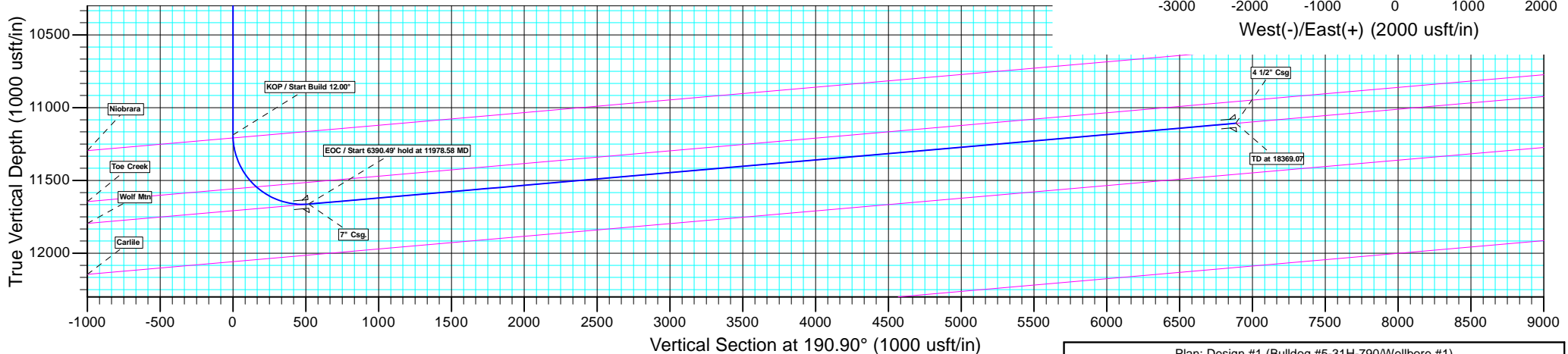
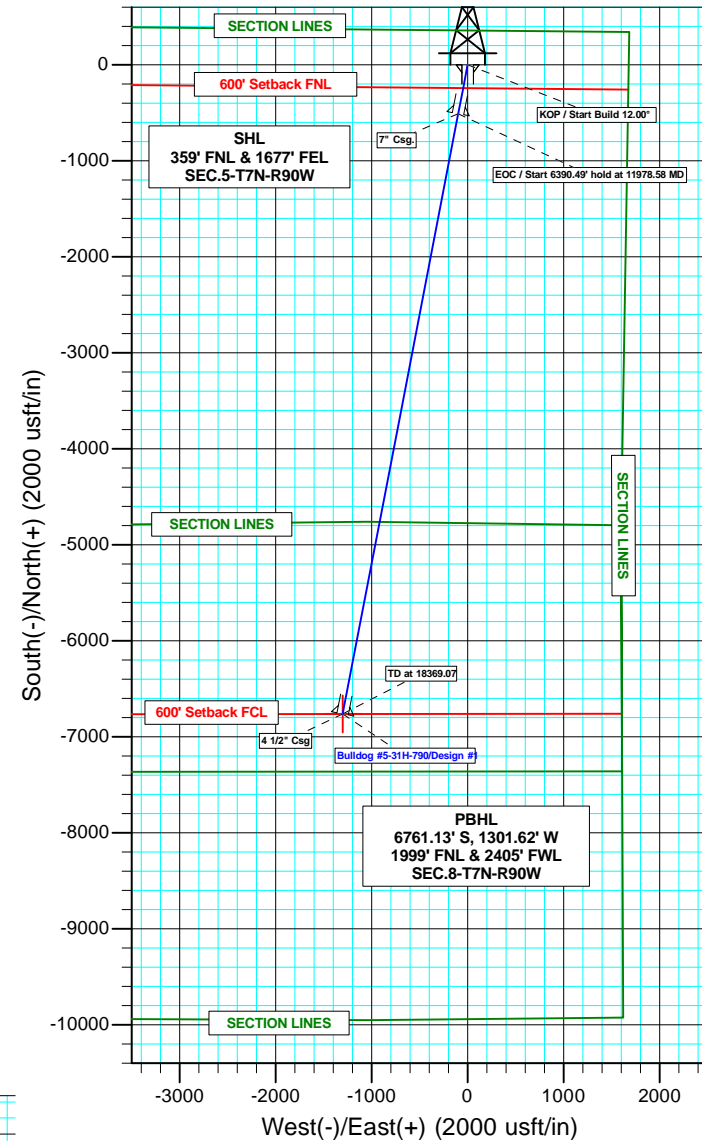
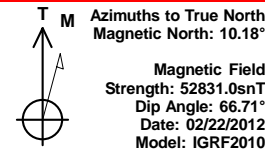
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone

System Datum: Mean Sea Level



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
2633.00	2633.00	Fox Hills
2958.00	2958.00	Lewis
5058.00	5058.00	Mesaverde
9158.00	9158.00	Mancos Mkr
11207.96	11207.97	Niobrara
11544.03	11590.26	Toe Creek



Plan: Design #1 (Bulldog #5-31H-790/Wellbore #1)

Created By: BRET WOLFORD Date: 11:18, February 22 2012

Axia Energy

**Moffat Co., CO
Sec.5-T7N-R90W
Bulldog #5-31H-790**

Wellbore #1

Plan: Design #1

Standard Planning Report

22 February, 2012



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Bulldog #5-31H-790
Company:	Axia Energy	TVD Reference:	WELL @ 6512.00usft
Project:	Moffat Co., CO	MD Reference:	WELL @ 6512.00usft
Site:	Sec.5-T7N-R90W	North Reference:	True
Well:	Bulldog #5-31H-790	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Project	Moffat Co., CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		Sec.5-T7N-R90W			
Site Position:		Northing:	1,467,653.259 usft	Latitude:	40° 35' 58.988 N
From:	Lat/Long	Easting:	2,441,516.424 usft	Longitude:	107° 30' 40.860 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"	Grid Convergence:	-1.30 °

Well	Bulldog #5-31H-790					
Well Position	+N/-S	0.00 usft	Northing:	1,467,653.255 usft	Latitude:	40° 35' 58.988 N
	+E/-W	0.00 usft	Easting:	2,441,516.424 usft	Longitude:	107° 30' 40.860 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	6,492.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	02/22/12	10.18	66.71	52,831

Design	Design #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	11,108.00	0.00	0.00	190.90

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
11,187.08	0.00	0.00	11,187.08	0.00	0.00	0.00	0.00	0.00	0.00	
11,978.58	94.98	190.90	11,662.74	-509.56	-98.10	12.00	12.00	0.00	190.90	Bulldog 5-31H-790 PE
18,369.07	94.98	190.90	11,108.00	-6,761.13	-1,301.62	0.00	0.00	0.00	0.00	Bulldog 5-31H-790 PE

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Bulldog #5-31H-790
Company:	Axia Energy	TVD Reference:	WELL @ 6512.00usft
Project:	Moffat Co., CO	MD Reference:	WELL @ 6512.00usft
Site:	Sec.5-T7N-R90W	North Reference:	True
Well:	Bulldog #5-31H-790	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
13 3/8" Csg.									
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills									
2,633.00	0.00	0.00	2,633.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
Lewis									
2,958.00	0.00	0.00	2,958.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00

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Company:	Axia Energy	TVD Reference:	WELL @ 6512.00usft
Project:	Moffat Co., CO	MD Reference:	WELL @ 6512.00usft
Site:	Sec.5-T7N-R90W	North Reference:	True
Well:	Bulldog #5-31H-790	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
Mesaverde									
5,058.00	0.00	0.00	5,058.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,700.00	0.00	0.00	0.00	0.00	0.00	0.00
6,800.00	0.00	0.00	6,800.00	0.00	0.00	0.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,900.00	0.00	0.00	0.00	0.00	0.00	0.00
7,000.00	0.00	0.00	7,000.00	0.00	0.00	0.00	0.00	0.00	0.00
7,100.00	0.00	0.00	7,100.00	0.00	0.00	0.00	0.00	0.00	0.00
7,200.00	0.00	0.00	7,200.00	0.00	0.00	0.00	0.00	0.00	0.00
7,300.00	0.00	0.00	7,300.00	0.00	0.00	0.00	0.00	0.00	0.00
7,400.00	0.00	0.00	7,400.00	0.00	0.00	0.00	0.00	0.00	0.00
7,500.00	0.00	0.00	7,500.00	0.00	0.00	0.00	0.00	0.00	0.00
7,600.00	0.00	0.00	7,600.00	0.00	0.00	0.00	0.00	0.00	0.00
7,700.00	0.00	0.00	7,700.00	0.00	0.00	0.00	0.00	0.00	0.00
7,800.00	0.00	0.00	7,800.00	0.00	0.00	0.00	0.00	0.00	0.00
7,900.00	0.00	0.00	7,900.00	0.00	0.00	0.00	0.00	0.00	0.00
8,000.00	0.00	0.00	8,000.00	0.00	0.00	0.00	0.00	0.00	0.00
8,100.00	0.00	0.00	8,100.00	0.00	0.00	0.00	0.00	0.00	0.00
8,200.00	0.00	0.00	8,200.00	0.00	0.00	0.00	0.00	0.00	0.00
8,300.00	0.00	0.00	8,300.00	0.00	0.00	0.00	0.00	0.00	0.00
8,400.00	0.00	0.00	8,400.00	0.00	0.00	0.00	0.00	0.00	0.00
8,500.00	0.00	0.00	8,500.00	0.00	0.00	0.00	0.00	0.00	0.00
8,600.00	0.00	0.00	8,600.00	0.00	0.00	0.00	0.00	0.00	0.00
8,700.00	0.00	0.00	8,700.00	0.00	0.00	0.00	0.00	0.00	0.00
8,800.00	0.00	0.00	8,800.00	0.00	0.00	0.00	0.00	0.00	0.00
8,900.00	0.00	0.00	8,900.00	0.00	0.00	0.00	0.00	0.00	0.00
9,000.00	0.00	0.00	9,000.00	0.00	0.00	0.00	0.00	0.00	0.00
9,100.00	0.00	0.00	9,100.00	0.00	0.00	0.00	0.00	0.00	0.00
Mancos Mkr									
9,158.00	0.00	0.00	9,158.00	0.00	0.00	0.00	0.00	0.00	0.00
9,200.00	0.00	0.00	9,200.00	0.00	0.00	0.00	0.00	0.00	0.00
9,300.00	0.00	0.00	9,300.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8" Csg.									
9,358.00	0.00	0.00	9,358.00	0.00	0.00	0.00	0.00	0.00	0.00
9,400.00	0.00	0.00	9,400.00	0.00	0.00	0.00	0.00	0.00	0.00

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Project:	Moffat Co., CO	MD Reference:	WELL @ 6512.00usft
Site:	Sec.5-T7N-R90W	North Reference:	True
Well:	Bulldog #5-31H-790	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,500.00	0.00	0.00	9,500.00	0.00	0.00	0.00	0.00	0.00	0.00
9,600.00	0.00	0.00	9,600.00	0.00	0.00	0.00	0.00	0.00	0.00
9,700.00	0.00	0.00	9,700.00	0.00	0.00	0.00	0.00	0.00	0.00
9,800.00	0.00	0.00	9,800.00	0.00	0.00	0.00	0.00	0.00	0.00
9,900.00	0.00	0.00	9,900.00	0.00	0.00	0.00	0.00	0.00	0.00
10,000.00	0.00	0.00	10,000.00	0.00	0.00	0.00	0.00	0.00	0.00
10,100.00	0.00	0.00	10,100.00	0.00	0.00	0.00	0.00	0.00	0.00
10,200.00	0.00	0.00	10,200.00	0.00	0.00	0.00	0.00	0.00	0.00
10,300.00	0.00	0.00	10,300.00	0.00	0.00	0.00	0.00	0.00	0.00
10,400.00	0.00	0.00	10,400.00	0.00	0.00	0.00	0.00	0.00	0.00
10,500.00	0.00	0.00	10,500.00	0.00	0.00	0.00	0.00	0.00	0.00
10,600.00	0.00	0.00	10,600.00	0.00	0.00	0.00	0.00	0.00	0.00
10,700.00	0.00	0.00	10,700.00	0.00	0.00	0.00	0.00	0.00	0.00
10,800.00	0.00	0.00	10,800.00	0.00	0.00	0.00	0.00	0.00	0.00
10,900.00	0.00	0.00	10,900.00	0.00	0.00	0.00	0.00	0.00	0.00
11,000.00	0.00	0.00	11,000.00	0.00	0.00	0.00	0.00	0.00	0.00
11,100.00	0.00	0.00	11,100.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP / Start Build 12.00°									
11,187.08	0.00	0.00	11,187.08	0.00	0.00	0.00	0.00	0.00	0.00
11,200.00	1.55	190.90	11,200.00	-0.17	-0.03	0.17	12.00	12.00	0.00
Niobrara									
11,207.97	2.51	190.90	11,207.96	-0.45	-0.09	0.46	12.00	12.00	0.00
11,225.00	4.55	190.90	11,224.96	-1.48	-0.28	1.51	12.00	12.00	0.00
11,250.00	7.55	190.90	11,249.82	-4.07	-0.78	4.14	12.00	12.00	0.00
11,275.00	10.55	190.90	11,274.50	-7.93	-1.53	8.07	12.00	12.00	0.00
11,300.00	13.55	190.90	11,298.95	-13.05	-2.51	13.29	12.00	12.00	0.00
11,325.00	16.55	190.90	11,323.09	-19.42	-3.74	19.78	12.00	12.00	0.00
11,350.00	19.55	190.90	11,346.86	-27.03	-5.20	27.53	12.00	12.00	0.00
11,375.00	22.55	190.90	11,370.19	-35.85	-6.90	36.51	12.00	12.00	0.00
11,400.00	25.55	190.90	11,393.01	-45.85	-8.83	46.69	12.00	12.00	0.00
11,425.00	28.55	190.90	11,415.28	-57.01	-10.98	58.06	12.00	12.00	0.00
11,450.00	31.55	190.90	11,436.91	-69.31	-13.34	70.58	12.00	12.00	0.00
11,475.00	34.55	190.90	11,457.87	-82.69	-15.92	84.21	12.00	12.00	0.00
11,500.00	37.55	190.90	11,478.08	-97.14	-18.70	98.92	12.00	12.00	0.00
11,525.00	40.55	190.90	11,497.49	-112.60	-21.68	114.67	12.00	12.00	0.00
11,550.00	43.55	190.90	11,516.05	-129.04	-24.84	131.41	12.00	12.00	0.00
11,575.00	46.55	190.90	11,533.71	-146.42	-28.19	149.10	12.00	12.00	0.00
Toe Creek									
11,590.26	48.38	190.90	11,544.03	-157.46	-30.31	160.35	12.00	12.00	0.00
11,600.00	49.55	190.90	11,550.42	-164.67	-31.70	167.70	12.00	12.00	0.00
11,625.00	52.55	190.90	11,566.13	-183.76	-35.38	187.14	12.00	12.00	0.00
11,650.00	55.55	190.90	11,580.81	-203.63	-39.20	207.37	12.00	12.00	0.00
11,675.00	58.55	190.90	11,594.40	-224.23	-43.17	228.35	12.00	12.00	0.00
11,700.00	61.55	190.90	11,606.88	-245.50	-47.26	250.01	12.00	12.00	0.00
11,725.00	64.55	190.90	11,618.21	-267.38	-51.47	272.29	12.00	12.00	0.00
11,750.00	67.55	190.90	11,628.36	-289.81	-55.79	295.14	12.00	12.00	0.00
11,775.00	70.55	190.90	11,637.30	-312.74	-60.21	318.48	12.00	12.00	0.00
11,800.00	73.55	190.90	11,645.00	-336.09	-64.70	342.26	12.00	12.00	0.00
11,825.00	76.55	190.90	11,651.45	-359.80	-69.27	366.41	12.00	12.00	0.00
11,850.00	79.55	190.90	11,656.63	-383.82	-73.89	390.87	12.00	12.00	0.00
11,875.00	82.55	190.90	11,660.51	-408.07	-78.56	415.56	12.00	12.00	0.00
11,900.00	85.55	190.90	11,663.11	-432.48	-83.26	440.42	12.00	12.00	0.00
11,925.00	88.55	190.90	11,664.39	-456.99	-87.98	465.39	12.00	12.00	0.00

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Bulldog #5-31H-790
Company:	Axia Energy	TVD Reference:	WELL @ 6512.00usft
Project:	Moffat Co., CO	MD Reference:	WELL @ 6512.00usft
Site:	Sec.5-T7N-R90W	North Reference:	True
Well:	Bulldog #5-31H-790	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,950.00	91.55	190.90	11,664.37	-481.54	-92.70	490.38	12.00	12.00	0.00
11,975.00	94.55	190.90	11,663.04	-506.05	-97.42	515.34	12.00	12.00	0.00
EOC / Start 6390.49' hold at 11978.58 MD - 7" Csg.									
11,978.58	94.98	190.90	11,662.74	-509.56	-98.10	518.91	12.00	12.00	0.00
12,000.00	94.98	190.90	11,660.88	-530.51	-102.13	540.25	0.00	0.00	0.00
12,100.00	94.98	190.90	11,652.20	-628.34	-120.96	639.87	0.00	0.00	0.00
12,200.00	94.98	190.90	11,643.52	-726.16	-139.80	739.50	0.00	0.00	0.00
12,300.00	94.98	190.90	11,634.84	-823.99	-158.63	839.12	0.00	0.00	0.00
12,400.00	94.98	190.90	11,626.16	-921.81	-177.46	938.74	0.00	0.00	0.00
12,500.00	94.98	190.90	11,617.48	-1,019.64	-196.30	1,038.36	0.00	0.00	0.00
12,600.00	94.98	190.90	11,608.80	-1,117.47	-215.13	1,137.99	0.00	0.00	0.00
12,700.00	94.98	190.90	11,600.12	-1,215.29	-233.96	1,237.61	0.00	0.00	0.00
12,800.00	94.98	190.90	11,591.44	-1,313.12	-252.80	1,337.23	0.00	0.00	0.00
12,900.00	94.98	190.90	11,582.76	-1,410.95	-271.63	1,436.85	0.00	0.00	0.00
13,000.00	94.98	190.90	11,574.08	-1,508.77	-290.46	1,536.48	0.00	0.00	0.00
13,100.00	94.98	190.90	11,565.39	-1,606.60	-309.29	1,636.10	0.00	0.00	0.00
13,200.00	94.98	190.90	11,556.71	-1,704.42	-328.13	1,735.72	0.00	0.00	0.00
13,300.00	94.98	190.90	11,548.03	-1,802.25	-346.96	1,835.34	0.00	0.00	0.00
13,400.00	94.98	190.90	11,539.35	-1,900.08	-365.79	1,934.97	0.00	0.00	0.00
13,500.00	94.98	190.90	11,530.67	-1,997.90	-384.63	2,034.59	0.00	0.00	0.00
13,600.00	94.98	190.90	11,521.99	-2,095.73	-403.46	2,134.21	0.00	0.00	0.00
13,700.00	94.98	190.90	11,513.31	-2,193.56	-422.29	2,233.83	0.00	0.00	0.00
13,800.00	94.98	190.90	11,504.63	-2,291.38	-441.13	2,333.46	0.00	0.00	0.00
13,900.00	94.98	190.90	11,495.95	-2,389.21	-459.96	2,433.08	0.00	0.00	0.00
14,000.00	94.98	190.90	11,487.27	-2,487.03	-478.79	2,532.70	0.00	0.00	0.00
14,100.00	94.98	190.90	11,478.59	-2,584.86	-497.62	2,632.32	0.00	0.00	0.00
14,200.00	94.98	190.90	11,469.91	-2,682.69	-516.46	2,731.95	0.00	0.00	0.00
14,300.00	94.98	190.90	11,461.22	-2,780.51	-535.29	2,831.57	0.00	0.00	0.00
14,400.00	94.98	190.90	11,452.54	-2,878.34	-554.12	2,931.19	0.00	0.00	0.00
14,500.00	94.98	190.90	11,443.86	-2,976.16	-572.96	3,030.81	0.00	0.00	0.00
14,600.00	94.98	190.90	11,435.18	-3,073.99	-591.79	3,130.44	0.00	0.00	0.00
14,700.00	94.98	190.90	11,426.50	-3,171.82	-610.62	3,230.06	0.00	0.00	0.00
14,800.00	94.98	190.90	11,417.82	-3,269.64	-629.46	3,329.68	0.00	0.00	0.00
14,900.00	94.98	190.90	11,409.14	-3,367.47	-648.29	3,429.30	0.00	0.00	0.00
15,000.00	94.98	190.90	11,400.46	-3,465.30	-667.12	3,528.93	0.00	0.00	0.00
15,100.00	94.98	190.90	11,391.78	-3,563.12	-685.95	3,628.55	0.00	0.00	0.00
15,200.00	94.98	190.90	11,383.10	-3,660.95	-704.79	3,728.17	0.00	0.00	0.00
15,300.00	94.98	190.90	11,374.42	-3,758.77	-723.62	3,827.79	0.00	0.00	0.00
15,400.00	94.98	190.90	11,365.74	-3,856.60	-742.45	3,927.42	0.00	0.00	0.00
15,500.00	94.98	190.90	11,357.06	-3,954.43	-761.29	4,027.04	0.00	0.00	0.00
15,600.00	94.98	190.90	11,348.37	-4,052.25	-780.12	4,126.66	0.00	0.00	0.00
15,700.00	94.98	190.90	11,339.69	-4,150.08	-798.95	4,226.28	0.00	0.00	0.00
15,800.00	94.98	190.90	11,331.01	-4,247.91	-817.79	4,325.91	0.00	0.00	0.00
15,900.00	94.98	190.90	11,322.33	-4,345.73	-836.62	4,425.53	0.00	0.00	0.00
16,000.00	94.98	190.90	11,313.65	-4,443.56	-855.45	4,525.15	0.00	0.00	0.00
16,100.00	94.98	190.90	11,304.97	-4,541.38	-874.29	4,624.77	0.00	0.00	0.00
16,200.00	94.98	190.90	11,296.29	-4,639.21	-893.12	4,724.40	0.00	0.00	0.00
16,300.00	94.98	190.90	11,287.61	-4,737.04	-911.95	4,824.02	0.00	0.00	0.00
16,400.00	94.98	190.90	11,278.93	-4,834.86	-930.78	4,923.64	0.00	0.00	0.00
16,500.00	94.98	190.90	11,270.25	-4,932.69	-949.62	5,023.26	0.00	0.00	0.00
16,600.00	94.98	190.90	11,261.57	-5,030.51	-968.45	5,122.89	0.00	0.00	0.00
16,700.00	94.98	190.90	11,252.89	-5,128.34	-987.28	5,222.51	0.00	0.00	0.00
16,800.00	94.98	190.90	11,244.20	-5,226.17	-1,006.12	5,322.13	0.00	0.00	0.00
16,900.00	94.98	190.90	11,235.52	-5,323.99	-1,024.95	5,421.75	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Bulldog #5-31H-790
Company:	Axia Energy	TVD Reference:	WELL @ 6512.00usft
Project:	Moffat Co., CO	MD Reference:	WELL @ 6512.00usft
Site:	Sec.5-T7N-R90W	North Reference:	True
Well:	Bulldog #5-31H-790	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
17,000.00	94.98	190.90	11,226.84	-5,421.82	-1,043.78	5,521.38	0.00	0.00	0.00	
17,100.00	94.98	190.90	11,218.16	-5,519.65	-1,062.62	5,621.00	0.00	0.00	0.00	
17,200.00	94.98	190.90	11,209.48	-5,617.47	-1,081.45	5,720.62	0.00	0.00	0.00	
17,300.00	94.98	190.90	11,200.80	-5,715.30	-1,100.28	5,820.24	0.00	0.00	0.00	
17,400.00	94.98	190.90	11,192.12	-5,813.12	-1,119.11	5,919.87	0.00	0.00	0.00	
17,500.00	94.98	190.90	11,183.44	-5,910.95	-1,137.95	6,019.49	0.00	0.00	0.00	
17,600.00	94.98	190.90	11,174.76	-6,008.78	-1,156.78	6,119.11	0.00	0.00	0.00	
17,700.00	94.98	190.90	11,166.08	-6,106.60	-1,175.61	6,218.73	0.00	0.00	0.00	
17,800.00	94.98	190.90	11,157.40	-6,204.43	-1,194.45	6,318.36	0.00	0.00	0.00	
17,900.00	94.98	190.90	11,148.72	-6,302.25	-1,213.28	6,417.98	0.00	0.00	0.00	
18,000.00	94.98	190.90	11,140.04	-6,400.08	-1,232.11	6,517.60	0.00	0.00	0.00	
18,100.00	94.98	190.90	11,131.35	-6,497.91	-1,250.95	6,617.22	0.00	0.00	0.00	
18,200.00	94.98	190.90	11,122.67	-6,595.73	-1,269.78	6,716.85	0.00	0.00	0.00	
18,300.00	94.98	190.90	11,113.99	-6,693.56	-1,288.61	6,816.47	0.00	0.00	0.00	
TD at 18369.07 - 4 1/2" Csg - Bulldog 5-31H-790 PBHL										
18,369.07	94.98	190.90	11,108.00	-6,761.13	-1,301.62	6,885.28	0.00	0.00	0.00	

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Bulldog 5-31H-790 PBHL	0.00	0.00	11,108.00	-6,761.13	-1,301.62	1,460,923.385	2,440,061.794	40° 34' 52.177 N	107° 30' 57.730 W
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
9,358.00	9,358.00	9 5/8" Csg.	9-5/8	12-1/4	
1,000.00	1,000.00	13 3/8" Csg.	13-3/8	17-1/2	
18,369.07	11,108.00	4 1/2" Csg	4-1/2	6	
11,978.58	11,662.74	7" Csg.	7	8-3/4	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,633.00	2,633.00	Fox Hills		-4.98	190.90
2,958.00	2,958.00	Lewis		-4.98	190.90
5,058.00	5,058.00	Mesaverde		-4.98	190.90
9,158.00	9,158.00	Mancos Mkr		-4.98	190.90
11,207.97	11,208.00	Niobrara		-4.98	190.90
11,590.26	11,558.00	Toe Creek		-4.98	190.90

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Bulldog #5-31H-790
Company:	Axia Energy	TVD Reference:	WELL @ 6512.00usft
Project:	Moffat Co., CO	MD Reference:	WELL @ 6512.00usft
Site:	Sec.5-T7N-R90W	North Reference:	True
Well:	Bulldog #5-31H-790	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
11,187.08	11,187.08	0.00	0.00	KOP / Start Build 12.00°
11,978.58	11,662.74	-509.56	-98.10	EOC / Start 6390.49' hold at 11978.58 MD
18,369.07	11,108.00	-6,761.13	-1,301.62	TD at 18369.07